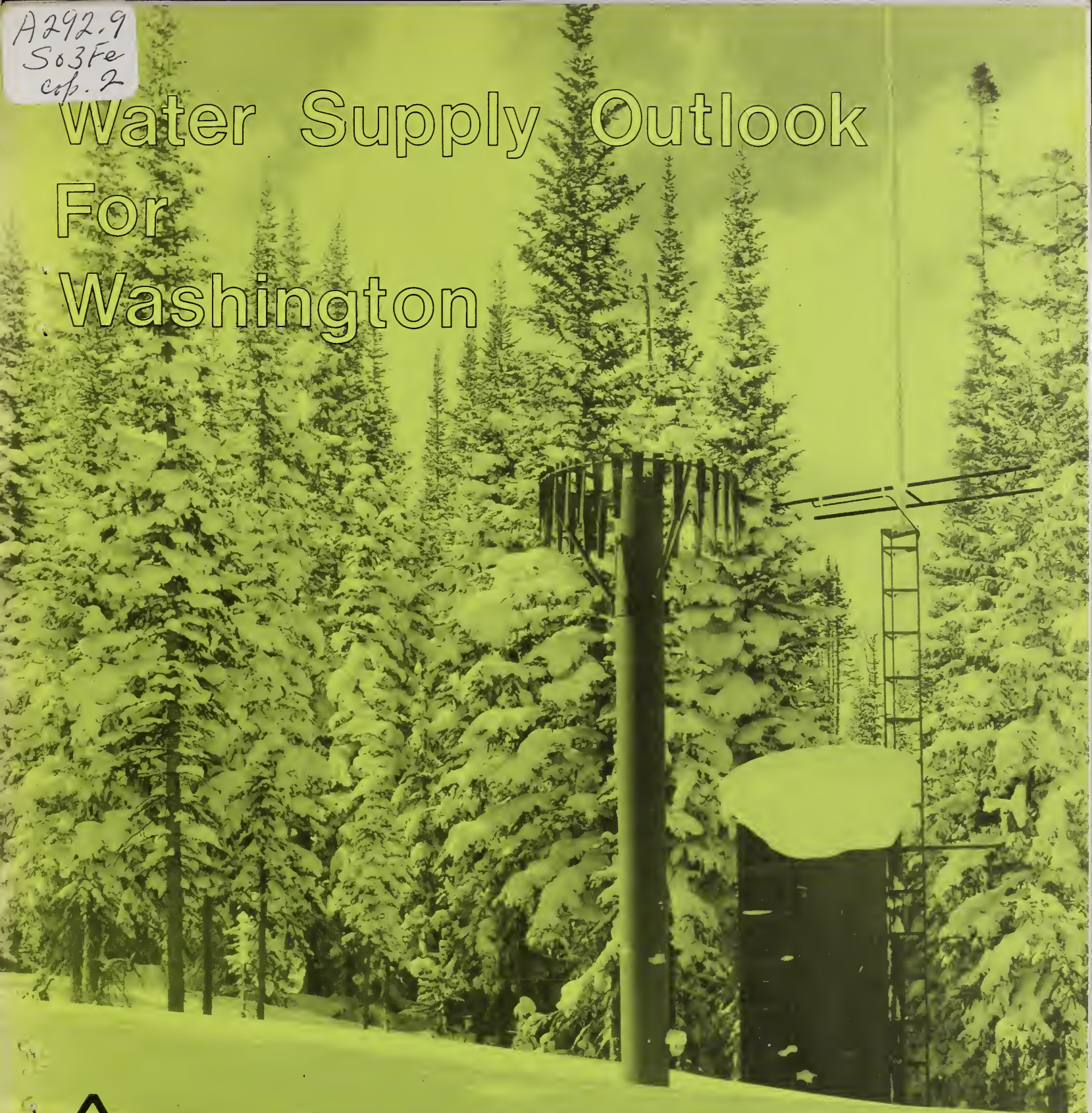


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Water Supply Outlook For Washington



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE

Cooperating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

AS OF
APR. 1, 1979

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on a measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: VIEW OF A SNOTEL DATA SITE IN THE SNOWY RANGE IN WYOMING. TALL CYLINDRICAL DEVICE IS A PRECIPITATION GAGE. SNOW PILLOWS ON THE GROUND NOT VISIBLE DUE TO SNOW COVER. SHELTER HOUSE, ANTENNA TOWER, ANTENNA, AND TEMPERATURE UNIT ARE VISIBLE BEHIND THE PRECIPITATION GAGE.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.



WATER SUPPLY OUTLOOK FOR WASHINGTON

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

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ADMINISTRATOR
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WASHINGTON, D C

Released by

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SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

WILBUR G. HALLAUER
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DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON

Report prepared by

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and
NORINE P. KENT, Statistical Assistant

SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201

THE HISTORY OF THE

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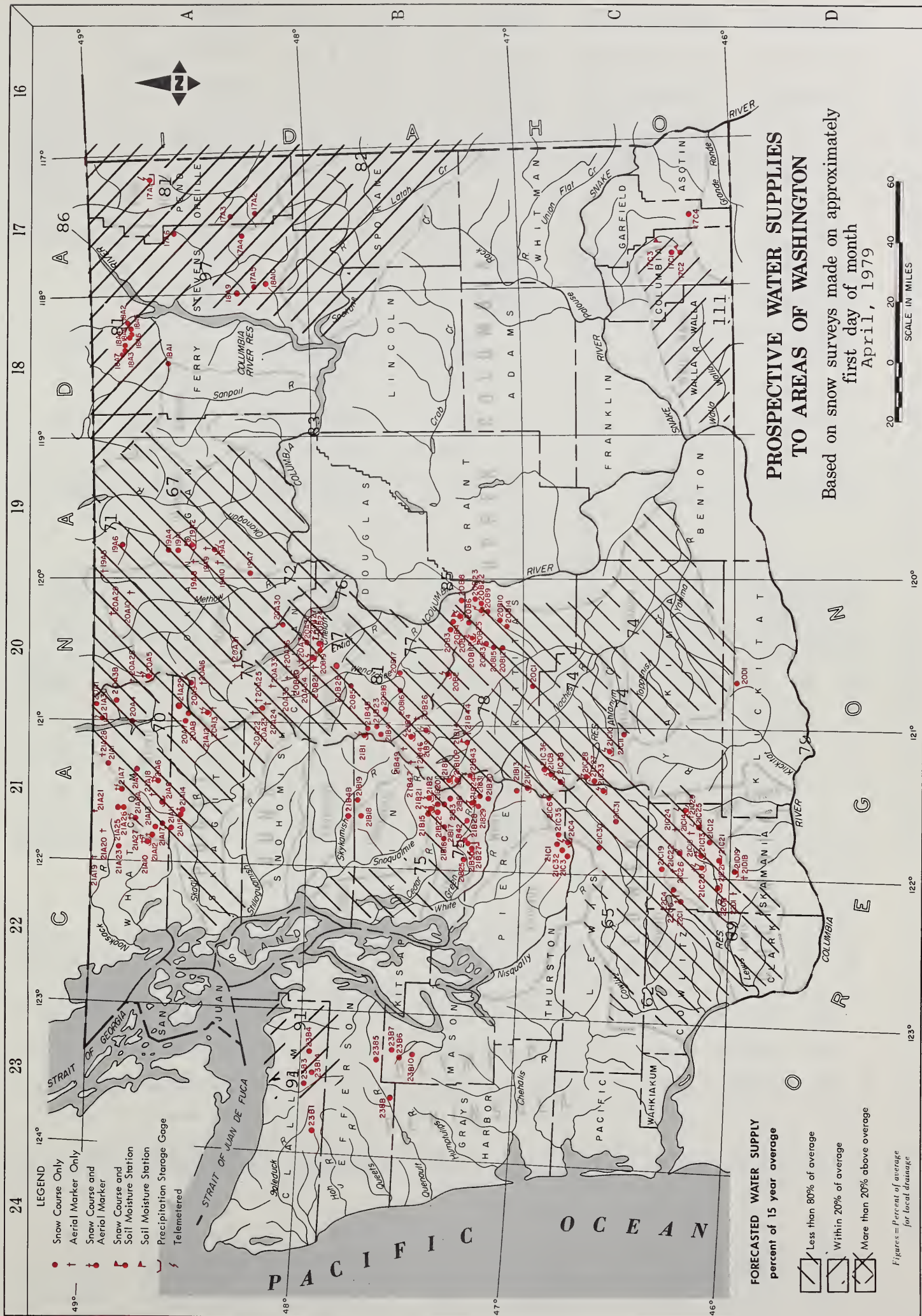
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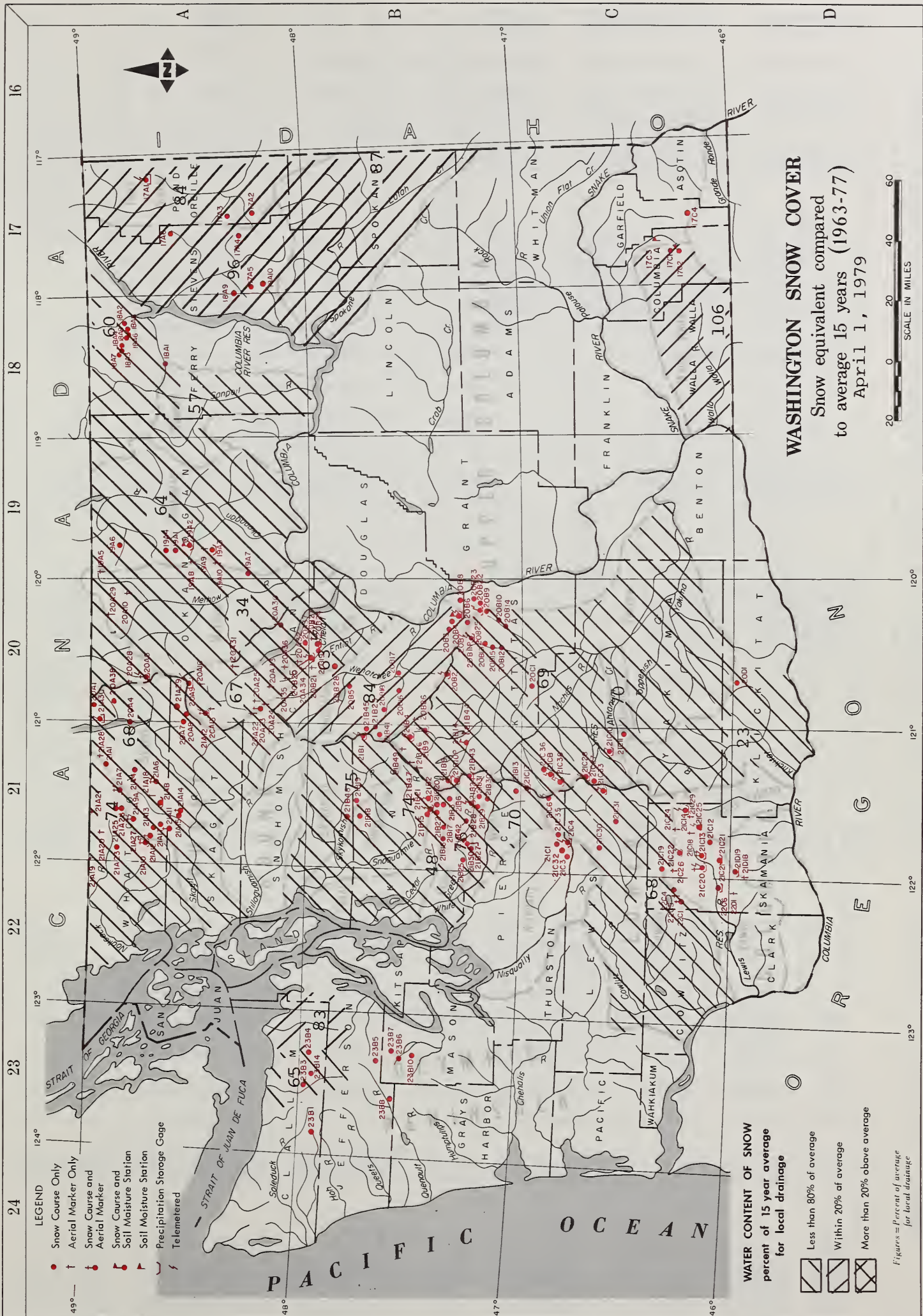
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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

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USDA-KS-PORTLAND, CA 1973 NTP-OL-22028C



WASHINGTON SNOW COVER
Snow equivalent compared
to average 15 years (1963-77)
April 1, 1979

SCALE IN MILES
0 20 40 60

- LEGEND**
- Snow Course Only
 - † Aerial Marker Only
 - Snow Course and Aerial Marker
 - Snow Course and Soil Moisture Station
 - Soil Moisture Station
 - Precipitation Storage Gage
 - Telemetered

WATER CONTENT OF SNOW
percent of 15 year average
for local drainage

- Less than 80% of average
- Within 20% of average
- More than 20% above average

Figures = Percent of average
for local drainage

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE																	
Pend Oreille River																	
Bayer Mountain	17A2	7	31N	43E	5250												
Bunchgrass Meadow	17A1P	24	37N	44E	5000												
Winchester Creek	17A3	30	33N	43E	2970												
Kettle River																	
Boulder Road	18A2	36	39N	36E	1450												
Butte Creek	18A3	28	39N	35E	4070												
Cabin Creek	18A8	5	38N	36E	3170												
Goat Creek	18A4	26	39N	35E	3595												
Snow Caps Creek	18A5	3	38N	36E	2150												
Snow Caps Trail	18A6	3	38N	36E	2720												
Summit G. S.	18A7	20	39N	35E	4600												
Calville River																	
Baird	17A6	19	36N	42E	3215												
Carlson	18A9	34	32N	38E	2885												
Cheweloh	17A4	11	32N	41E	4925												
Stranger Mountain	17A5	26	31N	38E	4990												
Taga	18A10	6	29N	38E	3370												
Sanpail River																	
Sherman Creek Pass	18A1	19	36N	35E	5350												
Okanagan River																	
Clark	19A8a	2	36N	23E	7000												
Muckamuck	19A9a	20	36N	24E	6750												
Mutton Creek No. 1	19A1	30	37N	24E	5700												
Mutton Creek No. 2	19A4	19	37N	24E	6000												
Paydayten	20A2Ba	32	40N	18E	4300												
Rusty Creek	19A3P	18	35N	24E	4000												
Salmon Meadows	19A2PM	33	37N	24E	4500												
Starvation Mtn.	19A10a	15	33N	23E	6750												
Tauts Caulce	19A6	30	39N	25E	2845												
Methaw River																	
Billy Goat Pass	20A10a	10	38N	20E	6400												
Dallar Watch	20A29a	8	39N	20E	7000												
Harris Pass	20ASAP	7	37N	18E	6500												
Hanschoe Basin	19A5a	15	40N	23E	7000												
Loup Loup	19A7	36	34N	23E	4650												
Chellan Lake Basin																	
Cloudy Pass	20A22a	12	31N	15E	6500												
Greenwood Flat	20A25a	3	31N	16E	3540												
Little Meadows	20A24a	8	31N	16E	5275												
Lyman Lake	20A23a	18	31N	16E	5900												
Park Creek Flat	20A13a	19	34N	16E	2220												
Park Creek Ridge	20A12a	18	34N	17E	4600												
Petersans	20A16a	3	34N	17E	3730												
Rainy Pass	20A9P	21	35N	17E	4780												
Safety Harbor	20A30a	32	31N	20E	6300												
War Creek Pass	20A31a	34	33N	18E	6500												
Entiat River																	
Blue Creek G. S.	20B28a	19	28N	18E	5425												
Brief	20B19	34	28N	19E	1600												
Entiat Meadows	20A33a	28	31N	17E	4540												
Entiat River Trail	20A34a	2	29N	17E	3325												
Fair Mile Ridge	20A36a	15	28N	19E	6810												
Fox Camp	20B27a	17	30N	18E	6510												
Pope Ridge	20B20P	22	29N	18E	3540												
Pope Ridge	20B24SP	22	29N	18E	3540												
Pugh Ridge	20A32a	34	30N	18E	6725												
Shady Pass	20A37	20	29N	19E	6200												
Snow Brushy	20A35a	21	30N	17E	3910												
Tommy Creek	20B21a	10	28N	18E	4900												
Wenatchee River																	
Berne-Mill Creek	21B23	7	26N	15E	3170												
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240												
Blewett Pass Na. 2	20B2P	35	22N	17E	4270												
Chiwaikum G. S.	20B16	4	25N	17E	1810												
Lake Wenatchee	20B85	33	27N	17E	1970												
Leavenworth R. S.	20B17	1	24N	17E	1127												
Merritt	20B18	4	26N	16E	2140												
Stevens Pass	21B1P	14	26N	13E	4070												
Stevens Pass Sand Shed	21B45	12	26N	19E	3700												
Trough #2	20B25SP	10	20N	20E	5310												
LOWER COLUMBIA DRAINAGE																	
Asotin Creek																	
Spruce Springs	17C4	9	8N	40E	5700												
Mill Creek																	
Cause	17C3m	2	9N	40E	3370												
Homestead	17C1	11	9N	40E	4030												
Marlin Springs (Helmets SM)	17C2M	23	9N	40E	4400												
Klickitat River																	
Satus Pass	20D1	21	6N	17E	4030												
White Salmon River																	
Culhus Creek	21C12	35	7N	8E	4000												
Lewis River																	
Blue Lake	21C22a	19	9N	8E	4800												
Bab's Trail	21C21P	25	8N	7E	2500												
Calamity Ridge	22D1a	8	5N	5E	2500												
Council Pass	21C18a	24	9N	9E	4200												
Divide Meadow	21C29a	21	9N	10E	5600												
Grand Meadow	21C25P	28	8N	9E	3500												
Snoqualmie River																	
Alpine Meadow	21B48	31	27N	9E	3500												
Olallie Meadows	21B82P	19	22N	11E	3625												
South Fork Tolt	21B18	26	26N	9E	1900												
Skykomish River																	
Lake Elizabeth	21B19	33	26N	10E	2900												
Dungeness River																	
Deer Park	23B4	1	28N	5W	5200												
Morse Creek																	
Cox Valley	23B14	31	29N	6W	4500												
Elwha River																	
Hurricane	23B3	36	29N	7W	4500												
Skokomish River																	
Black and White Lakes	23B7	17	24N	5W	4200												
Black and White Lakes	23B6	16	24N	5W	4700												
Home Sweet Home	23B10	1	23N	6W	3000												
Sundown Pass	23B5	28	25N	5W	5200												
Sundown Pass	23B8	25	24N	7W	3900												
Soleduck River																	
Deer Lake	23B1	14	28N	9W	3900												
LEGEND																	
	21A7																
	21A7a																
	21A7m																
	21A7P																
	21A7SP																

WATER SUPPLY OUTLOOK

State of Washington

April 1, 1979

* * * * *
* The input to the watersheds of Washington and tributary *
* basins during the month of March was subnormal. The result *
* is that the water supply has been reduced from that which *
* was reported last month, but not to the extent as was *
* reported on February 1. Snow cover, as measured near the *
* first of April, indicates a reduction of approximately *
* 20 percent from last month's measurement. Low elevation *
* snow courses are reduced even further due to the total lack *
* of input during the month and in locations where it did *
* occur, precipitation was in the form of rain and not snow. *
* Precipitation, as measured by the National Weather Service, *
* was only 50 to 60 percent of normal over the state with the *
* exception of Southeastern Washington, the only drainage *
* division that had above normal rainfall. Runoff was also *
* subnormal over most of the state with the exception being *
* the Puget Sound Drainage and along the southern portion of *
* the state. The end result is a reduction in water supply *
* forecasts, percentagewise, from that which was reported last *
* month. *
* * * * *

SNOW COVER

Snow packs measured near the first of April range from a high of 6 percent above normal for the Mill Creek Drainage to a low of 77 percent below normal for the Klickitat Drainage. The storm patterns of the last week added considerable amounts of snow to the mountain watersheds but not nearly enough to overcome the deficit experienced throughout the rest of the month. The high temperatures of March depleted the snow pack at the lower elevations and decreased it quite markedly in the upper reaches. Under normal conditions, maximum snow water equivalents occur on April 1; but this year, many maximums occurred March 1. The only rosy spot is in the Blue Mountains of Northeastern Oregon and Southeastern Washington. These areas have above normal snow cover; but even in this area, it has been markedly reduced from that reported last month.

RESERVOIRS

The irrigation reservoirs are generally in pretty good shape for April 1 and with normal subsequent precipitation, should comfortably fill with the spring runoff. The five reservoirs in the Yakima Drainage Basin have water in storage 82 percent of normal. Cle Elum Reservoir is the only one that is down any appreciable amount and this is due to the lowering of the reservoir last winter for maintenance purposes. The two small reservoirs in the Okanogan Drainage have well above normal amounts of water in storage and the power reservoirs are in pretty good shape although Lake Chelan is only 19 percent full, or 71 percent of average as of April 1.

PRECIPITATION

Rainfall, as measured by the National Weather Service, was generally well below normal during March; and winter precipitation is all subnormal with only the Southeastern Drainage Division reported to have near normal amounts of winter rainfall. By drainage divisions, the Columbia above Castlegar had rainfall that was 51 percent of normal; the Pend Oreille-Spokane, 59 percent; Northeastern Washington, 67 percent; Southeastern Washington, 106 percent; Central Washington, 46 percent; the Okanogan Drainage, 29 percent; and on the West Slopes of the Cascades, the Northwestern Slope, 61 percent; and the Southwestern Slope, 53 percent.

STREAMFLOW

The main stem of the Columbia River is holding up pretty good. The Columbia at Birchbank had a flow 99 percent of normal and at International Boundary, 92 percent. On down the stream, the flow at Grand Coulee was 95 percent; below Priest Rapids Dam, 95 percent; and at The Dalles, 103 percent. Other streams that had above normal outflows during the month were the Green, Skykomish, Skagit, Spokane, Yakima, Palouse, Walla Walla, and Cowlitz. Inflow to the five Yakima irrigation reservoirs was better during March than at any time in the last ten years except for 1978 and 1972. Forecasts of streamflow now range from a low of 62 percent of normal in the Cowlitz River to a high of 111 percent for Mill Creek. The Northeastern and Southeastern areas of the state, as well as the Olympic Peninsula, have the best water supply outlook. Numerical forecasts can be found following this narrative.

STREAMFLOW FORECASTS - APRIL 1979

The following summarized runoff forecasts are based principally on mountain snow-cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1978 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1979	Seasonal Streamflow in Thousands of Acre-Feet					
		%	Fore-	15-Yr			
		15-yr. Avg.	cast period	1978	1977	1976	63-77 Average
<u>COLUMBIA BASIN</u>							
<u>COLUMBIA RIVER SYSTEM</u>							
Columbia River	39300	86	Apr-Sept	44008	31562	53969	45502
at Birchbank <u>1/</u>	31400	86	Apr-July	34030	23812	38930	36353
	22500	86	Apr-June	24082	18026	25889	26194
Columbia River	56700	83	Apr-Sept	66868	41056	81878	68012
at Grand Coulee <u>1/</u>	47600	83	Apr-July	54559	32018	63543	57035
	36700	83	Apr-June	41585	25623	47065	44273
Columbia River	62600	85	Apr-Sept	72892	43415	87384	73935
bl. Rock Island Dam <u>1/</u>	53000	85	Apr-July	60163	34253	68404	62462
	41200	85	Apr-June	46242	27563	50696	48489
Columbia River	81600	79	Apr-Sept	101055	54092	120643	103493
At The Dalles, OR <u>1/</u>	69700	79	Apr-July	84815	42940	97836	88519
	56300	79	Apr-June	67353	35524	77318	71237
<u>PEND OREILLE RIVER SYSTEM</u>							
Pend Oreille River	12900	81	Apr-Sept	15581	4130	16946	15950
bl. Box Canyon	11900	81	Apr-July	14080	2715	15271	14690
	9500	81	Apr-June	11750	2261	11814	11760
<u>KETTLE RIVER SYSTEM</u>							
Kettle River	1500	81	Apr-Sept	2056	1145	2434	1846
nr. Laurier	1400	80	Apr-July	1877	1105	2112	1754
	1260	79	Apr-June	1686	1037	1826	1588
Colville River	130	97	Apr-Sept	138	26	123	134
at Kettle Falls	120	98	Apr-July	125	22	106	123
	110	96	Apr-June	117	20	98	115

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1979	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-Yr. Avg.	Fore- cast Period	1978	1977	1976	15-Yr 63-77
<u>SPOKANE RIVER SYSTEM</u>							
Spokane River	2400	82	Apr-Sept	2427	-	3418	2910
at Post Falls, ID <u>2/</u>	2185	80	Apr-July	2330	-	3275	2733
	2055	79	Apr-June	2199	-	3033	2600
<u>OKANOGAN RIVER SYSTEM</u>							
Similkameen River	1070	71	Apr-Sept	1506	645	1944	1517
nr. Nighthawk	1000	71	Apr-July	1365	605	1720	1417
	845	71	Apr-June	1170	547	1347	1192
Okanogan River							
nr. Tonasket	1150	67	Apr-Sept	1690	708	2185	1719
	1050	67	Apr-July	1500	644	1836	1565
	875	67	Apr-June	1286	583	1382	1305
<u>METHOW RIVER SYSTEM</u>							
Methow River	741	72	Apr-Sept	-	280	1205	1011
nr. Pateros	675	72	Apr-July	-	246	1047	937
	570	72	Apr-June	-	217	802	791
<u>CHELAN RIVER SYSTEM</u>							
Chelan River	940	76	Apr-Sept	1335	599	1466	1237
at Chelan <u>3/</u>	850	79	Apr-July	1164	481	1184	1080
	650	78	Apr-June	906	403	836	834
Stehekin River	700	77	Apr-Sept	888	494	1010	904
at Stehekin	610	80	Apr-July	750	382	787	764
	460	80	Apr-June	563	311	523	578
Entiat	185	77	Apr-Sept	295	95	310	241
nr. Ardenvoir	170	78	Apr-July	268	81	266	218
	140	80	Apr-June	215	70	190	174
<u>WENATCHEE RIVER SYSTEM</u>							
Wenatchee River	1050	81	Apr-Sept	1311	633	1510	1297
at Plain	950	82	Apr-July	1171	542	1263	1156
	770	85	Apr-June	945	479	891	903
Wenatchee River	1360	77	Apr-Sept	1755	839	2074	1767
at Peshastin	1250	79	Apr-July	1576	730	1746	1587
	950	76	Apr-June	1275	753	1238	1250
Stemilt Basin	115*		May-Sept	-	-	144*	-
nr. Wenatchee							
Icicle Creek	290	79	Apr-Sept	-	-	-	-
nr. Leavenworth	270	79	Apr-July	-	-	-	-
	220	79	Apr-June	-	-	-	-

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Basin, Stream and Station	Forecast Runoff 1979	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-Yr. Avg.	Fore- cast period	1978	1977	1976	15-Yr. Average 63-77
YAKIMA RIVER SYSTEM							
Yakima River	125	86	Apr-Sept	106	78	157	145
nr. Martin <u>4/</u>	115	86	Apr-July	92	67	141	133
	105	92	Apr-June	83	67	117	114
Yakima River	830	78	Apr-Sept	911	493	1091	1062
at Cle Elum <u>5/</u>	760	78	Apr-July	726	416	980	970
	650	78	Apr-June	636	379	807	838
Yakima River	1600	74	Apr-Sept	2059	802	2521	2168
nr. Parker <u>6/</u>	1460	75	Apr-July	1691	657	2205	1954
	1290	76	Apr-June	1487	611	1810	1693
Kachess River	110	87	Apr-Sept	101	61	142	126
nr. Easton <u>7/</u>	105	88	Apr-July	95	55	131	119
	95	91	Apr-June	88	53	109	104
Cle Elum River	400	84	Apr-Sept	411	250	561	479
nr. Roslyn <u>8/</u>	370	85	Apr-July	369	215	484	435
	310	87	Apr-June	314	193	370	358
Bumping River	110	75	Apr-Sept	117	63	175	146
nr. Nile <u>9/</u>	100	75	Apr-July	105	55	152	133
	85	80	Apr-June	89	51	109	106
American River	95	75	Apr-Sept		50	132	127
nr. Nile	90	78	Apr-July		44	116	116
	75	79	Apr-June		39	86	95
Tieton River	190	75	Apr-Sept	238	128	302	252
at Tieton Dam <u>10/</u>	160	75	Apr-July	196	92	242	212
	130	77	Apr-June	156	76	179	168
Naches River	660	74	Apr-Sept	760	327	1046	890
nr. Naches <u>11/</u>	600	75	Apr-July	657	275	908	802
	530	78	Apr-June	564	245	717	678
Ahtanum Creek	35	74	Apr-Sept		8	51	47
nr. Tampico <u>12/</u>	32	76	Apr-July		7	45	42
	28	76	Apr-June		6	37	37

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation, and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

10/ Observed flow corrected for storage in Rimrock Lake.

11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals, and City of Yakima.

12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1979	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-Yr. Avg.	Fore- cast period	1978	1977	1976	15-Yr. Average 63-77
<u>LOWER COLUMBIA RIVER SYSTEM</u>							
Mill Creek at Walla Walla	19.5	111	Apr-Sept		4.5	29.9	17.5
Lewis River	900	69	Apr-Sept	1134	1030	1285	1301
at Ariel <u>13/</u>	790	70	Apr-July	946	832	1130	1131
	710	71	Apr-June	850	763	990	995
Cowlitz River	1370	65	Apr-Sept		1570	2296	2125
bl. Mayfield Dam	1220	66	Apr-July		1293	1963	1853
	1040	67	Apr-June		1168	1584	1552
Cowlitz River	1710	62	Apr-Sept	2310	2157	2924	2767
at Castle Rock <u>14/</u>	1520	63	Apr-July	1886	1766	2493	2401
	1300	64	Apr-June	1616	1601	2063	2028
<u>OLYMPIC PENINSULA</u>							
<u>DUNGENESS RIVER SYSTEM</u>							
Dungeness River	145	91	Apr-Sept		97	160	160
nr. Sequim	115	88	Apr-July		75	128	130
	85	89	Apr-June		61	91	96
<u>PUGET SOUND</u>							
<u>SKAGIT RIVER SYSTEM</u>							
Skagit River	1520	69	Apr-Aug		1155	3003	2212
at Newhalem <u>15/</u>	1655	70	Apr-Sept		728	2943	2356
	1340	68	Apr-July		535	2322	1972
	990	67	Apr-June		429	1595	1485
<u>ELWHA RIVER SYSTEM</u>							
Elwha River	505	91	Apr-Sept		370	614	553
nr. Port Angeles	410	90	Apr-July		295	492	454
<u>CEDAR RIVER SYSTEM</u>							
Cedar River	70	75	Apr-Sept		55	91	93
nr. Cedar Falls							
<u>GREEN RIVER SYSTEM</u>							
Green River							
bl. Howard Hanson Dam <u>16/</u>	290	75	Mar-Sept		305	442	387

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.

14/ Observed flow corrected for storage in Mayfield Reservoir.

15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.

16/ Observed flow corrected for storage in Howard Hanson Dam.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about April 1, 1979, as percent of the same date in 1978 and 1977 and average of record.

Tributary Basin	No. of Courses Average	1979 Snow Water Expressed as percent of		
		1978	1977	1973-88 Avg.

UPPER COLUMBIA BASIN

Pend Oreille	18	114	175	84
Kettle	15	63	101	60
Colville	4	122	191	96
Spokane	15	123	190	87
Sanpoil	1	71	143	57
Okanogan	37	69	122	64
Methow	7	37	112	34
Chelan	1	58	110	67
Entiat	9	58	176	63
Wenatchee	9	100	267	84
Yakima	15	102	240	69
Ahtanum	2	85	204	70

LOWER COLUMBIA

Mill Creek	3	314	209	106
Klickitat	1	-	-	23
Cowlitz	2	95	201	68

PUGET SOUND

White	3	92	186	70
Green	5	180	182	76
Cedar	6	270	116	48
Snoqualmie	3	185	167	74
Skykomish	3	126	172	75
Skagit	15	140	169	68
Nooksack	5	182	124	74

OLYMPIC PENINSULA

Morse Creek	1	110	139	70
Elwha	1	147	124	65
Dungeness	1	165	152	83

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured April 1			
			1979	1978	1977	Normal*
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	152.1	277.8	30.3	121.6
Columbia	Franklin D. Roosevelt Lake	5232.0	1879.4	1842.8	1673.1	1260.0
Columbia	Banks Lake	714.9	650.7	682.9	566.1	590.8
Okanogan	Conconully Reservoir	13.0	10.6	4.2	8.8	7.2
Okanogan	Salmon Lake	10.5	10.5	6.2	9.3	7.5
Chelan	Lake Chelan	676.1	131.6	156.0	205.4	184.6
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	101.9	158.0	91.0	108.8
Kachess	Kachess Lake	239.0	207.9	215.9	214.4	189.8
Cle Elum	Lake Cle Elum	436.9	128.4	315.0	431.0	292.1
Bumping	Bumping Lake	33.7	11.5	24.4	13.6	8.6
Tieton	Rimrock Lake	198.0	154.4	169.3	139.8	142.2
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir	1404.1	688.3	729.5	468.1	754.4
Skagit	Diablo Reservoir	90.6	88.4	86.8	87.1	85.7
Skagit	Gorge Reservoir	9.8	8.0	8.3	8.3	8.0

^{1/} Based on Active Storage

* 15-Yr. Average 1963-1977

SOIL MOISTURE - APRIL

Drainage Basin and Station	Number	Elev.	Profile Depth	Inches Total Capacity	Soil Moisture Content		
					Inches 1979	as of 1978	April 1 1977
<u>OKANOGAN</u>							
Salmon Meadows	19A2M	4500	48	5.4	-	-	2.0
Trout Creek	3-M	3600	48	7.3	-	5.1	3.5
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	9.5	9.0	6.9
Helmets	17C2M	4400	48	12.0	9.7	9.5	9.3
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	12.5	7.1	7.9

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	Inches Total Capacity	Soil Moisture Content (Inches) as of Oct. 1		
					1978	1977	1976
<u>OKANOGAN</u>							
Salmon Meadows	19A02M	4500	48	5.4	-	-	3.4
Trout Creek	3-M	3600	48	7.3	3.7	3.2	3.4
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	5.9	-	-
Helmets	17C2M	4400	48	12.0	8.2	-	-
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	10.3	6.6	-

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL		WINTER	
	Sept-Oct Observed	1978 <u>2/</u> Departure	Nov. 1978 - Mar. 1979 <u>2/</u> Observed	Departure
Columbia in Canada	6.29	+1.27	12.00	-3.51
Pend Oreille - Spokane	2.09	-1.95	13.90	-4.36
Northeastern Washington	1.74	-0.73	7.27	-2.13
Southeastern Washington	1.22	-1.29	9.82	-0.61
Central Washington	0.60	-0.37	3.34	-1.94
North Central Washington	2.22	+0.63	3.78	-2.76
Northwest Slope Cascades	9.89	-3.32	43.16	-12.23
Southwest Slope Cascades	6.18	-2.50	26.74	-14.90
Northeastern Washington	- Lower Spokane, Colville, Sanpoil and Lower Kettle Drainages.			
Southeastern Washington	- Touchet, Tucannon and Palouse Drainages.			
Central Washington	- Yakima, Wenatchee and Chelan Drainages.			
North Central Washington	- Methow and Okanogan Drainages.			
Northwest Slope Cascades	- Puget Sound Drainages.			
Southwest Slope Cascades	- Lower Columbia Drainages.			

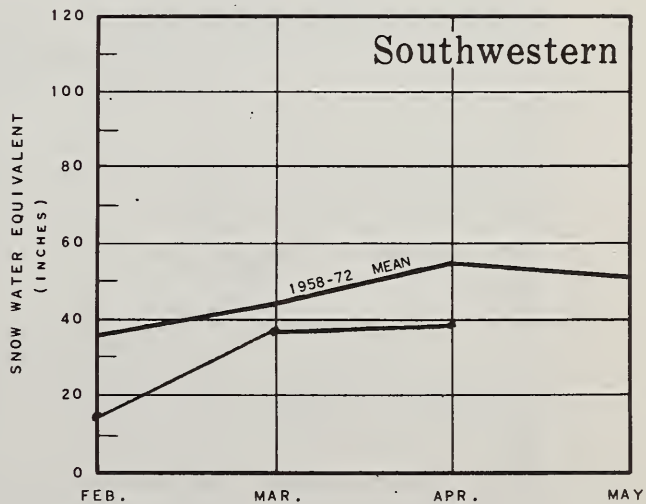
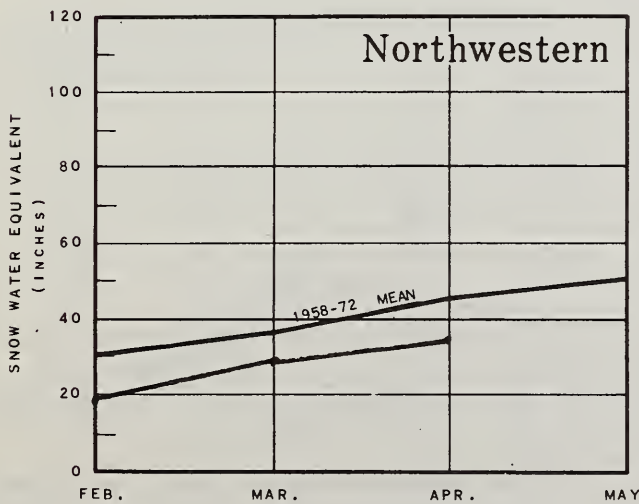
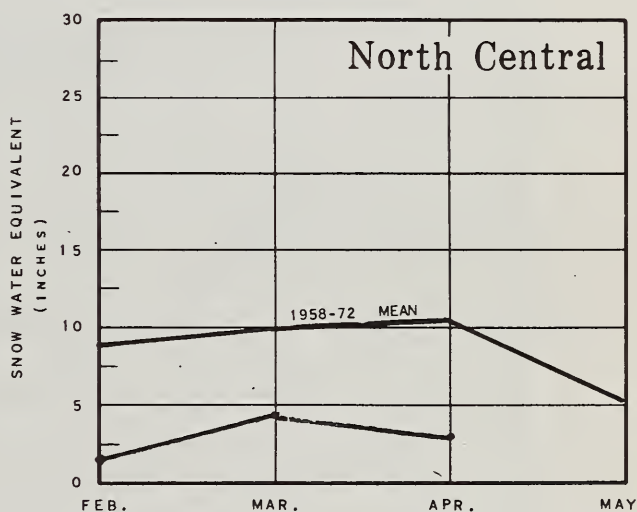
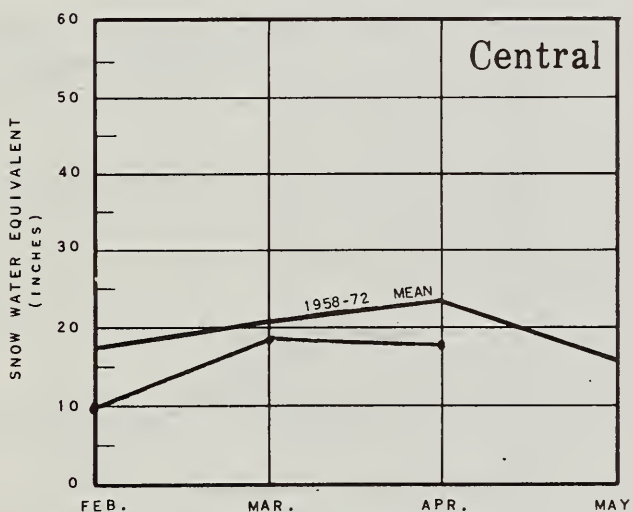
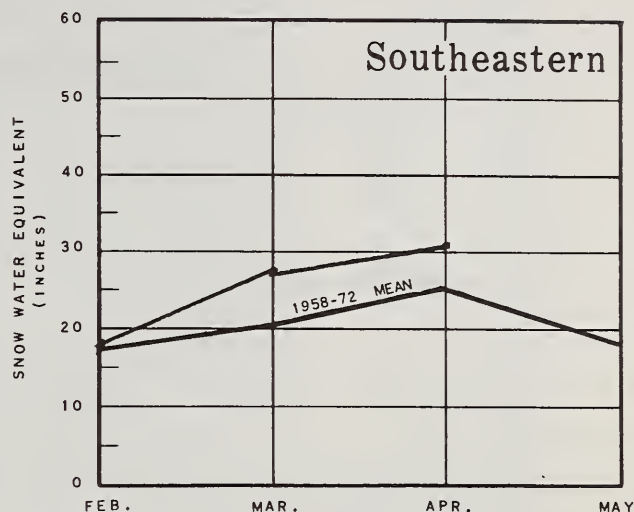
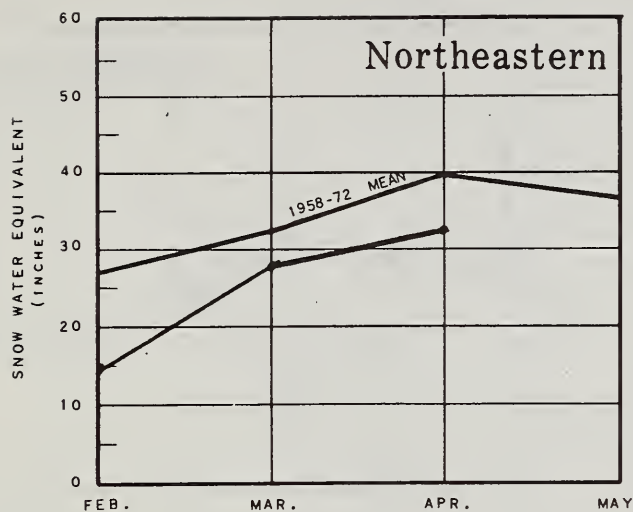
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and the National Weather Service.

2/ - Departure from 15-year (1958-72) drainage division average.

WASHINGTON SNOW COVER

1979

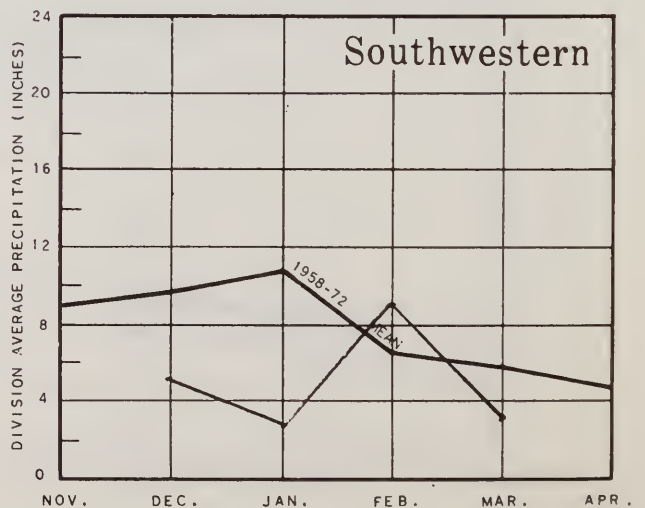
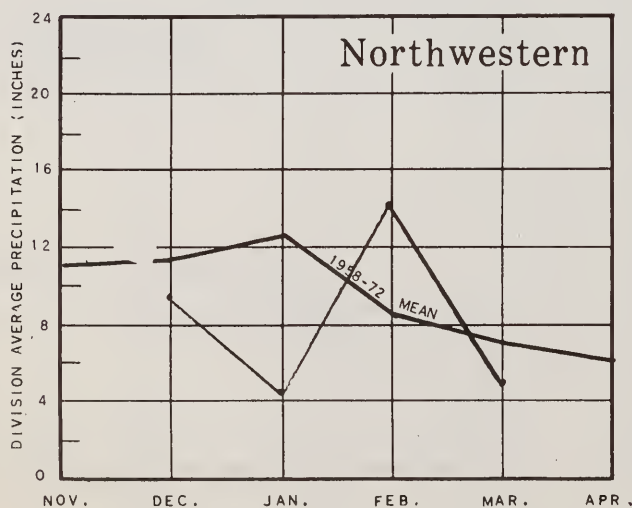
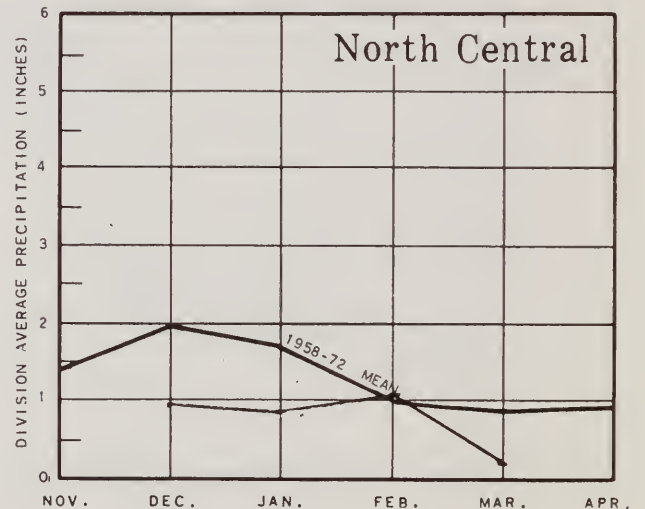
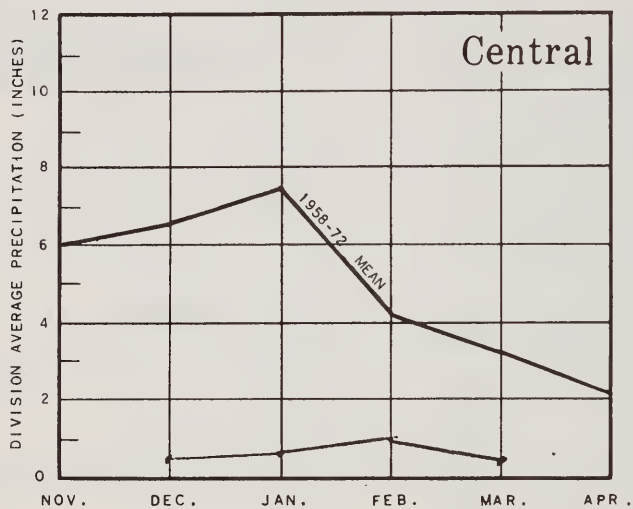
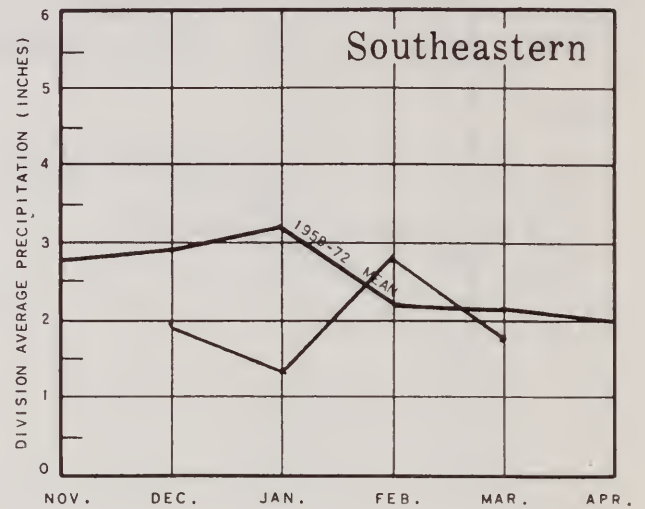
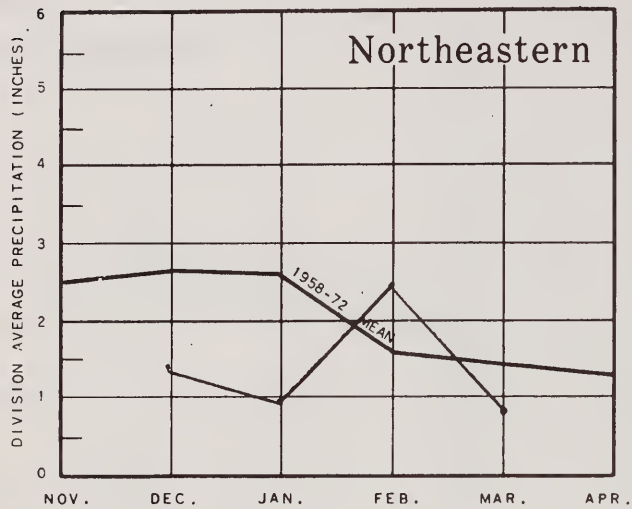
DRAINAGE AREAS



WASHINGTON VALLEY PRECIPITATION

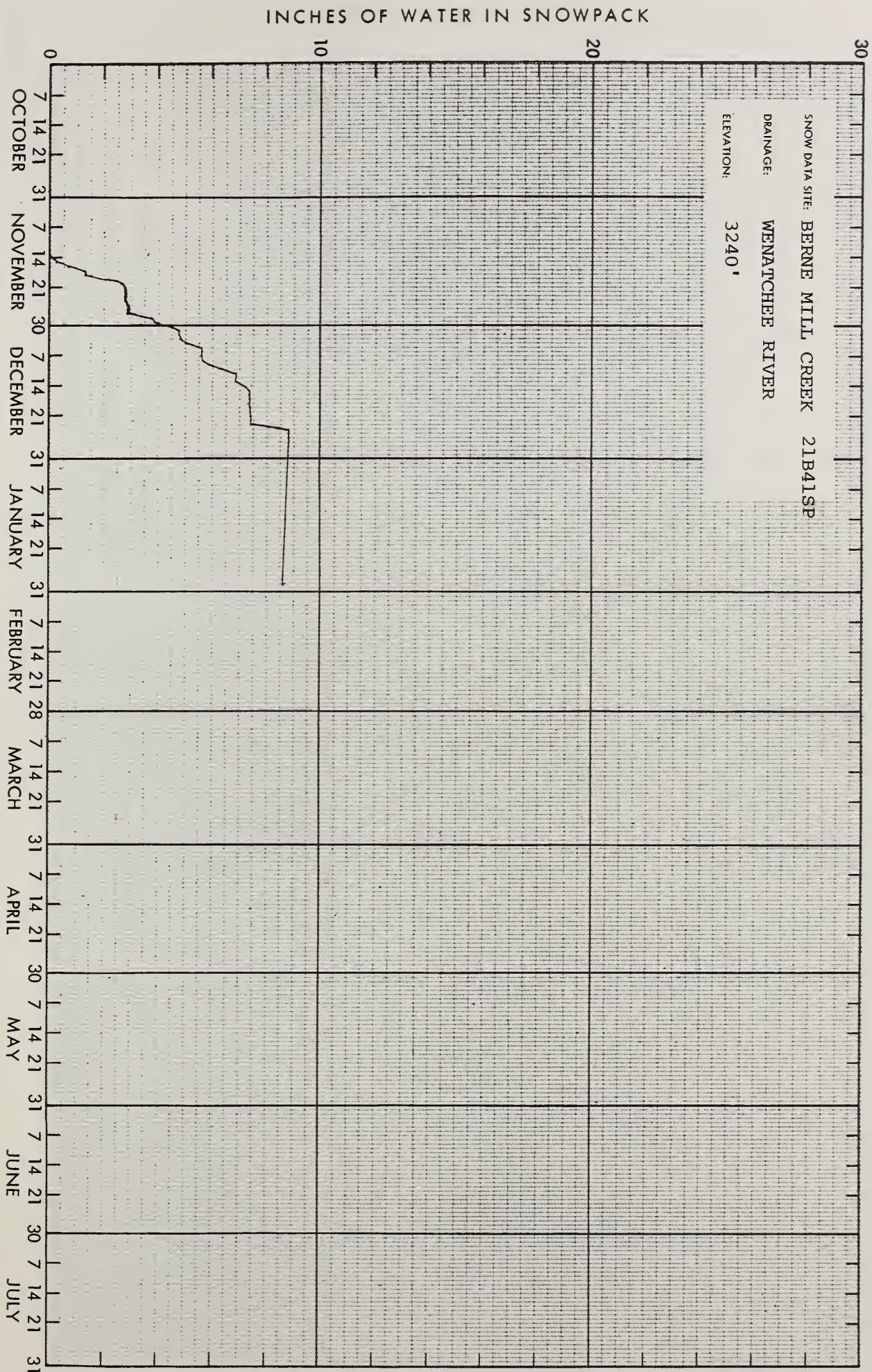
1979

DRAINAGE AREAS



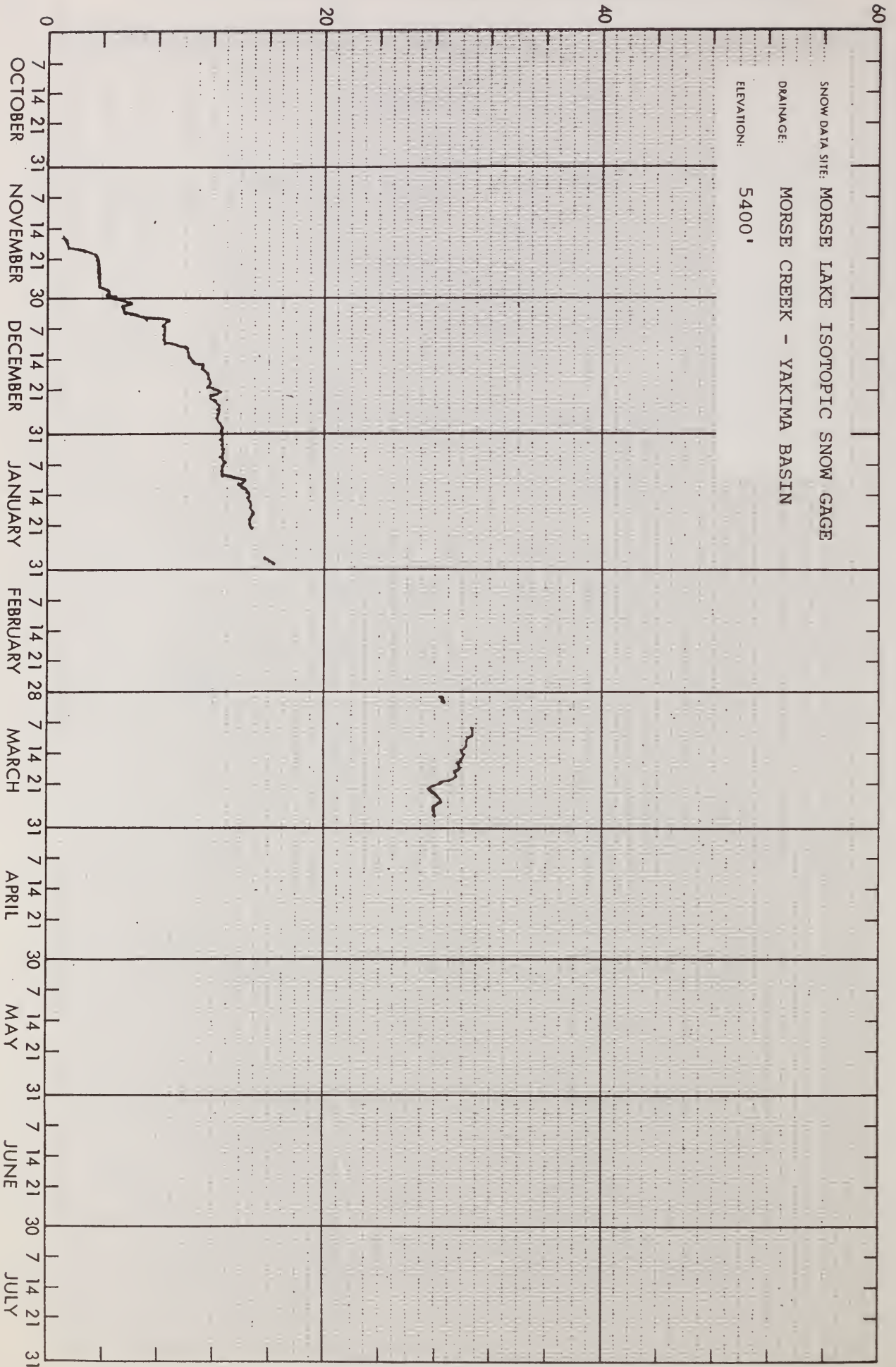
Preliminary Analysis by National Weather Service

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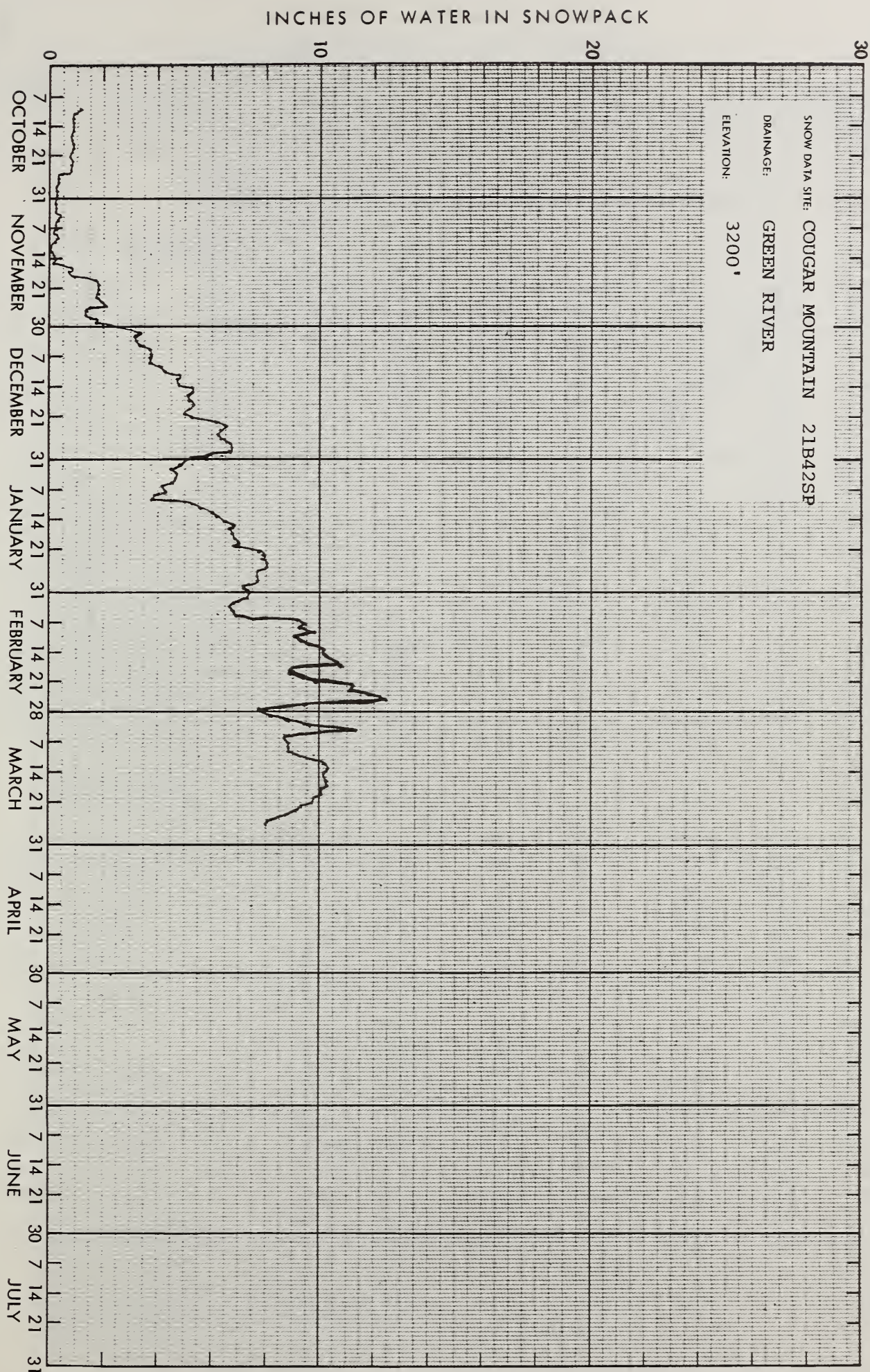


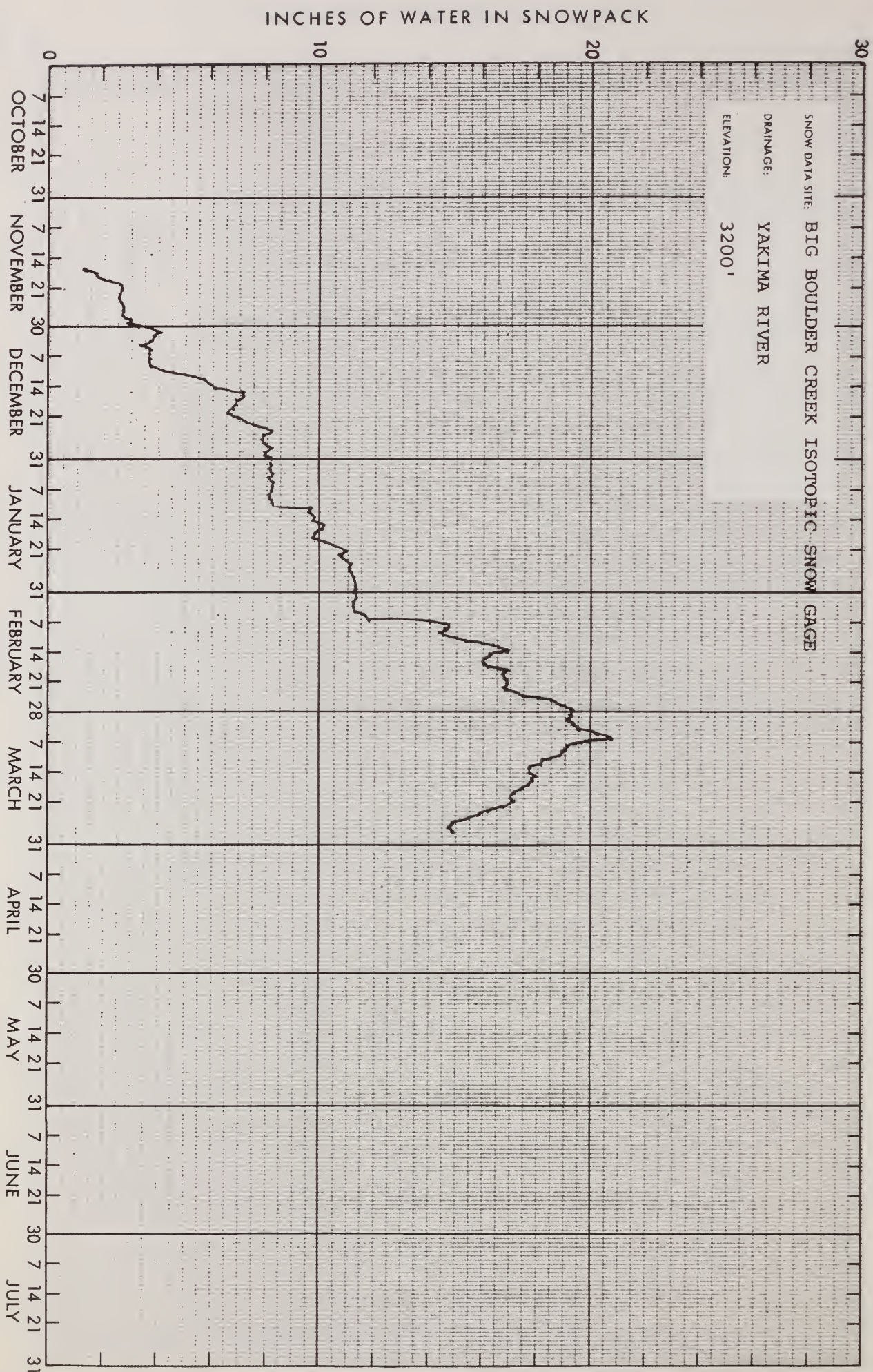
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INCHES OF WATER IN SNOWPACK



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SNOW DATA TO APRIL 1, 1979 - APPENDIX 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

U P P E R C O L U M B I A D R A I N A G EPEND OREILLE RIVER

Baree Creek	15B11	5500	3/30	105	41.9	40.6	50.3
Baree Midway	15B16	4600	3/30	94	35.7	30.6	38.8
Baree Trail	15B15	3800	3/29	26	7.9	5.8	9.8
Benton Meadow	16A02	2344	3/28	14	5.0	1.5	5.0
Benton Spring	16A03	4900	3/28	45	16.6	16.7	20.2
Boyer Mountain	17A02	5250	3/27	55	20.4	25.6	27.2
Brush Creek Timber	14A13	5000	3/28	35	10.5	8.8	10.6
Bunchgrass Meadow	17A01	5000	3/29	58	22.6	29.1	30.7
Chewelah	17A04	4923	3/31	52	17.8	15.5	17.0
Heart Lake Trail	14C10	4800	4/3	71	25.4	18.1	23.8
Hoodoo Basin	15C10	6000	4/3	130	46.1	47.7	53.6
Hoodoo Creek	15C01	5900	4/3	128	45.1	43.5	49.9
Lookout	15B02	5250	3/14	75	28.8	33.8	38.6
			3/30	84	32.4	32.2	37.1
Mosquito Ridge	16A04A	5100	4/3	82	31.0	33.2	40.2
Nelson	19-Can	3050	3/29	41	14.2	12.2	15.7*
Schweitzer Bowl	16A06	4500	4/2	55	22.7	23.1	30.9
Schweitzer Ridge	16A05	6100	4/2	81	32.0	48.2	47.8
Smith Creek	16A01	4800	3/28	85	31.4	37.6	48.8
Winchester Creek	17A03	2970	3/27	26	7.2	9.6	11.2

KETTLE RIVER

Barnes Creek	90-Can	5300	3/31	55	18.3	20.4	21.1*
Big White Mtn.	154-Can	5500	3/31	54	15.9	21.0	20.9*
Bluejoint Mtn.	244-Can	7500	3/30	62	19.3	28.2	21.5*
Boulder Road	18A02	1450	3/28	0	0.0	0.0	2.4
Butte Creek	18A03	4070	3/28	23	5.7	9.5	9.5
Cabin Creek	18A08	3170	3/28	21	4.8	7.1	8.3
Carmi	126-Can	4100	3/31	16	4.0	6.7	6.7*
Farron # 1	17-Can	4000	3/27	30	8.7	12.8	13.4*
Farron # 2	243-Can	4000	3/27	31	9.0	13.5	13.5*
Goat Creek	18A04	3595	3/28	3	0.8	5.4	5.3
Graystoke Lake	5-Can	5950	3/27	52	15.9	16.2	21.5*
Monashee Pass	48A-Can	4500	3/31	40	13.1	13.8	14.1*
Old Glory Mountain	42-Can	7000	3/30	53	17.2	31.7	28.9*
Snow Caps Creek	18A05	2150	3/28	0	0.0	0.0	2.2
Snow Caps Trail	18A06	2720	3/28	4	1.0	4.1	4.9
Summit G.S.	18A07	4600	3/28	16	4.7	8.0	8.5
Trapping Creek Lower	166-Can	3050	3/31	4	0.9	3.7	3.9*
Trapping Creek Upper	165-Can	4450	3/31	29	9.3	8.3	10.2*

Average based on 1963-77 average

* Average for years of record

SNOW DATA TO APRIL 1, 1979 - APPENDIX 2

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average #

COLVILLE RIVER

Baird	17A06	3215	3/29	19	6.5	4.1	5.6
Carlson	18A09	2885	3/31	0	0.0	0.0	2.6
Chewelah	17A04	4925	3/31	52	17.8	15.5	17.0
Stranger Mountain	17A05	4990	3/31	32	11.6	10.8	14.5
Togo	18A10	3370	3/31	34	10.9	10.2	12.9

SPOKANE RIVER

Above Burke	15B08	6100	3/30	59	22.1	18.5	24.7
Above Roland	15B07	4350	4/4	83	32.6	26.8	35.2
Below Roland	15B06	3770	4/4	41	17.8	11.6	16.5
Copper Ridge	16B02	4800	3/28	65	26.8	16.0	29.7
Forty-nine Meadows	15B03	5000	4/1	76	24.7	19.8	32.5
Fourth of July Summit	16B03	3100	3/13	32	11.6	-	
			3/28	28	8.5	0.0	8.8
Granite Peak	15B13A	6000	4/1	122	36.5	34.4	46.8
Kellogg Peak	16B05A	5560	4/3	75	27.8	24.8	35.4
Lookout	15B02	5250	3/14	75	28.8	33.8	38.6
			3/30	84	32.4	32.2	37.1
Lost Lake	15B14A	6000	4/1	134	40.5	44.3	61.8
Lower Sands Creek	16B01	3400	3/28	59	19.2	16.2	21.9
Mosquito Ridge	16A04A	5110	4/3	82	31.0	33.2	40.2
Roland Summit	15B05A	5200	4/3	91	37.4	36.6	40.1
Sherwin	16C01	3200	3/30	38	14.0	6.6	13.8
Sunset	15B09A	5600	4/3	91	32.0	30.5	36.2

SANPOIL RIVER

Sherman Creek Pass	18A01	5350	3/29	30	8.6	12.1	15.0
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OKANOGAN RIVER

Aberdeen Lake	6A-Can	4300	3/30	20	6.5	6.1	6.2*
Blackwall Mountain	100-Can	6250	4/2	72	24.4	30.9	35.0*
Bouleau Lake	234-Can	4580	3/25	39	11.2	15.0	15.0*
Brenda Mine	193-Can	4800	3/29	35	9.6	13.3	14.3*
Brookmere	27-Can	3200	3/30	18	5.5	7.6	9.7*
Carrs Landing Upper	168-Can			Late Report		3.1	3.7*
Enderby	130-Can	6250	3/29	76	24.0	42.1	39.8*
Esperon Creek Lower	164-Can	4400	3/30	28	7.9	11.9	12.9*
Esperon Creek Middle	163-Can	4700	3/30	39	11.7	15.8	16.5*
Esperon Creek Upper	162-Can	5400	3/30	42	13.2	18.7	20.4*

Average based on 1963-77 average

* Average for years of record

SNOW DATA TO APRIL 1, 1979 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

OKANOGAN RIVER (Cont.)

Freezeout Meadows New	20A38	5000	3/29	69	28.0	24.0	41.0
Graystoke Lake	5-Can	5950	3/27	52	15.9	16.2	21.5*
Hamilton Hill	107-Can	4900	3/27	34	10.6	16.7	15.9*
Harts Pass	20A05A	6500	3/30	88	31.9	47.4	48.7
Horseshoe Basin +	19A05a	7000	4/2	48	14.4	16.3	19.4
Isintok Lake	152-Can	5510	3/25	20	5.5	9.4	8.6*
Lost Horse Mountain	105-Can	6300	3/30	32	6.5	6.8	9.4*
Loup Loup	19A07	4650	3/29	6	1.7	9.4	9.2
McCulloch	4-Can	4200	3/30	20	6.3	5.2	6.7*
Missezula Mountain	106-Can	5100	3/28	23	6.3	11.8	9.1*
Mission Creek	5A-Can	6000	3/27	48	15.8	20.8	20.4*
Monashee Pass	48A-Can	4500	3/31	40	13.1	13.8	14.1*
Mount Kobau	156-Can	5950	3/29	20	4.1	12.4	13.7*
Muckamuck +	19A09a	6390	4/2	32	9.6	17.0	17.9
Mutton Creek No. 1	19A01	5700	3/28	11	3.2	14.6	14.7
Mutton Creek No. 2SP	19A11SP	6000	3/28	-	2.4	16.5	13.0
New Copper Mountain	46A-Can	4300	3/29	11	3.5	2.8	5.2*
New Penticton Res. #2	183-Can	5225	3/30	27	6.3	9.4	9.5*
Nickel Plate Mtn.	47-Can	6200	3/29	26	6.5	10.4	8.3*
Oyama Lake	203-Can	4400	3/29	20	5.4	8.0	7.8*
Paysayten +	20A28a	4300		Not Measured		8.2	18.7
Postill Lake	55-Can	4500	3/30	29	8.3	7.9	9.2*
Quartette Lake	34-Can	4000	3/29	32	11.0	10.6	14.6*
Rusty Creek	19A03	4000	3/30	3	1.0	6.6	6.6
Salmon Meadows	19A02	4500	3/28	10	2.9	9.0	10.1
Silver Star Mountain	99-Can	6050	4/1	61	19.1	32.2	28.9*
Starvation Mtn. +	19A10a	6750	4/2	60	18.0	20.4	20.7
Summerland Reservoir	3A-Can	4200	3/25	27	7.5	9.3	9.4*
Touts Coulee	19A06	2845	3/28	0	0.0	0.0	1.8
Trout Creek	3-Can	4700	3/27	23	5.2	7.3	7.6*
Vaseux Creek	233-Can	4600	3/31	15	3.5	5.6	7.2*
White Rocks Mountain	70-Can	6000	3/29	50	17.7	25.5	23.9*

METHOW RIVER

Harts Pass	20A05A	6500	3/30	88	31.9	47.4	48.7
Horseshoe Basin +	19A05a	7000	4/2	48	14.4	16.3	19.4
Loup Loup	19A07	4650	3/29	6	1.7	9.4	9.2
Mutton Creek No. 1	19A01	5700	3/28	11	3.2	14.6	14.7
Mutton Creek No. 2 SP	19A11SP	6000	3/28	-	2.4	16.5	13.0
Rusty Creek	19A03	4000	3/30	3	1.0	6.6	6.6
Salmon Meadows	19A02	4500	3/28	10	2.9	9.0	10.1

Average based on 1963-77 average

* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO APRIL 1, 1979 - APPENDIX 4

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #
<u>CHELAN LAKE BASIN</u>							
Cloudy Pass +	20A22a	6500		Not Measured	-	49.8	
Greenwood Flat +	20A25a	3540		Not Measured	-	25.5	
Little Meadows +	20A24a	5275		Not Measured	-	49.0	
Lyman Lake	20A23A	5900		Late Report	59.3	65.5	
Park Creek Flat +	20A13a	2220		Not Measured	-	26.7	
Park Creek Ridge	20A12A	4600		Late Report	46.6	47.0	
Petersons +	20A16a	3730		Not Measured	-	34.8	
Rainy Pass	20A09	4780	3/30	90	28.0	43.4	43.7
<u>ENTIAT RIVER</u>							
Blue Creek G.S.	20B28a	5425	4/1	72	27.4	45.2	43.5
Brief	20B19	1600	3/27	0	0.0	3.7	4.6
Entiat Meadows +	20A33a	4540	4/1	66	25.1	48.0	49.3
Entiat River Trail +	20A34a	3325	4/1	34	13.9	23.6	18.2
Four Mile Ridge +	20B27a	6800	4/1	60	22.8	45.2	37.8
Fox Camp +	20A36a	6510	4/1	Not Measured		71.6	57.8
Pope Ridge	20B20	3540	3/29	35	14.2	20.7	18.9
Pugh Ridge +	20A32a	6725	4/1	61	23.2	45.7	37.5
Shady Pass	20A37	6200	3/29	52	19.4	36.8	32.9
Snow Brushy +	20A35a	3910	4/1	67	27.5	39.2	40.3
Tommy Creek +	20B21a	4900	4/1	39	14.8	24.5	27.3
<u>WENATCHEE RIVER</u>							
Berne-Mill Creek	21B23	2925	3/14	70	27.3	28.0	26.1
			3/28	64	24.7	27.1	29.8
Berne-Mill Creek New SP	21B41	3240	3/28	51	21.5	18.6	28.3
Blewett Pass No. 2	20B02	4270	3/26	36	13.9	15.6	16.9
Chiwaukum G.S.	20B16	1810	3/14	36	11.9	13.4	11.3
			3/28	31	8.1	8.9	10.2
Fish Lake	21B04	3371	3/28	62	26.6	26.5	35.3
Lake Wenatchee	20B05	1970	3/14	44	15.9	17.0	15.4
			3/28	36	13.0	13.4	12.9
Leavenworth R.S.	20B17	1127	3/13	16	5.2	0.8	2.2
			3/30	0	0.0	0.0	0.6
Lyman Lake	20A23A	5900		Late Report	59.3	65.5	
Merritt	20B18	2140	3/14	52	19.0	21.4	16.0
			3/28	45	16.7	12.9	15.5
Stevens Pass	21B01	4070	3/14	100	40.6	50.0	52.3
			3/28	92	40.9	46.3	54.9
Stevens Pass Sand Shed	21B45	3700	3/14	77	31.3	33.5	37.5
			3/28	69	30.4	32.0	39.5

Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadis observation

SNOW DATA TO APRIL 1, 1979 - APPENDIX 5

SNOW			THIS YEAR			PAST RECORD		
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)		
NAME	Number	Elevation				Last Year	Average $\frac{1}{2}$	
<u>SQUILCHUCK CREEK</u>								
Beehive Springs	20B03	4400	3/29	25	7.4	7.1	7.9	
Scout-A-Vista	20B04	3400	3/29	22	5.3	7.3	7.3	
<u>STEMILT CREEK</u>								
Jump-Off	20B08	4450	3/28	28	9.0	10.8	8.2	
Stemilt Slide	20B06	5000	3/28	33	11.1	13.7	13.7	
Upper Wheeler	20B07	4400	3/28	21	6.9	7.3	8.7	
<u>COLOCKUM CREEK</u>								
Colockum Creek Upper	20B22	5300	3/28	27	9.3	14.3	15.1	
Colockum Creek Lower	20B23	4300	3/28	28	8.8	10.5	9.9	
Trough # 2 SP	20B25	5310	3/28	33	10.5	18.0	6.0	
<u>YAKIMA RIVER</u>								
Ahtanum R.S.	21C11	3100	3/28	14	4.2	4.4	6.0	
Big Boulder Creek	21B09	3200	3/28	36	13.1	10.0	20.1	
Blewett Pass No. 2	20B02	4270	3/26	36	13.9	15.6	16.9	
Bumping Lake	21C08	3450	3/13	35	11.2	13.6	17.1	
			3/29	29	9.5	10.0	16.5	
Bumping Lake New	21C36	3400	3/13	46	14.6	16.9	22.0	
			3/29	39	13.1	14.5	21.7	
Cayuse Pass	21C06	5300	4/5	148	63.5	70.4	90.3	
Colockum Pass	20B09	5370	3/28	28	10.2	21.0	16.6	
Cooke Creek	20B10	4123	3/28	0	0.0	0.0	5.1	
Corral Pass	21B13	6000	3/26	71	31.8	30.5	43.4	
Fish Lake	21B04	3371	3/28	62	26.6	26.5	35.3	
Green Lake	21C10	6000	3/28	67	24.5	32.5	34.9	
Grouse Camp	20B11	5385	3/29	35	14.1	18.4	16.6	
High Creek	20B12	2930	3/29	0	0.0	0.0	3.6	
Joe Lake +	21B46a	4624			Late Report	51.7	70.6	
Lake Cle Elum	21B14M	2200	3/13	24	8.9	6.5	10.0	
			3/29	14	4.8	0.0	6.7	
Lemah Creek +	21B47a	3327			Late Report	26.5	46.6	
Manashtash	20C01	3935	3/30	0	0.0	0.0	3.0	
Morse Lake	21C17	5400	3/28	94	39.7	48.7	59.6	
Nanum	20B13	2340	3/29	19	5.8	0.0	8.2	
Olallie Meadows	21B02	3625	3/26	82	39.0	26.4	51.9	
Satus Pass	20D01	4030	3/30	7	2.2	0.0	9.6	
Stampede Pass SP	21B10	3860	3/15	92	39.6	43.0	41.5	
			4/2	99	41.3	29.8	43.9	

Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO APRIL 1, 1979 - APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average [†]

YAKIMA RIVER (Cont.)

Trail Creek	20B14	3360	3/28	0	0.0	0.0	0.0
Tunnel Avenue	21B08	2450	3/14	52	19.2	15.5	25.9
			3/28	46	18.0	11.2	24.6
Van Epps Pass +	20B26a	5925		Late Report		43.7	57.5
Walters Flat	20B15	3360	3/29	12	4.2	0.0	5.5
Waptus Lake +	21B49a	3024		Late Report		36.5	44.5
White Pass (E. Side)	21C28	4500	3/12	56	20.1	20.1	25.1
			3/27	51	17.5	17.4	26.0

AHTANUM CREEK

Ahtanum R.S.	21C11	3100	3/28	14	4.2	4.4	6.0
Green Lake	21C10	6000	3/28	67	24.5	32.5	34.9

LOWER COLUMBIA DRAINAGEASOTIN CREEK

Spruce Springs	17C04	5700	3/26	58	22.9	18.5	26.4
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MILL CREEK

Homestead	17C01	4030	3/28	22	9.1	0.0	8.9
Martin Springs	17C02	4400	3/28	38	14.9	3.5	14.9
Tollgate	18D3M	5070	3/29	67	30.5	15.1	26.6

KLICKITAT RIVER

Satus Pass	20D01	4030	3/30	7	2.2	0.0	9.6
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COWLITZ RIVER

Cayuse Pass	21C06	5300	4/5	148	63.5	70.4	90.3
White Pass (E. Side)	21C28	4500	3/12	56	20.1	20.1	25.1
			3/27	51	17.5	17.4	26.0

PUGET SOUND DRAINAGEWHITE RIVER

Cayuse Pass	21C06	5300	4/5	148	63.5	70.4	90.3
Corral Pass	21B13	6000	3/26	71	31.8	30.5	43.4
Morse Lake	21C17	5400	3/28	94	39.7	48.7	59.6

Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO APRIL 1, 1979 - APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

GREEN RIVER

Airstrip	21B24	1800	4/5	0	0.0	0.0	2.1
Charley Creek	21B25	1200	4/5	0	0.0	0.0	0.0
Cougar Mountain SP	21B42	3200	3/26	33	15.6	0.0	25.1
Grass Mtn. No. 2	21B27	2900	4/5	26	11.4	0.0	24.3
Grass Mtn. No. 3	21B28	2100	4/5	0	0.0	0.0	4.9
Lester Creek	21B29	3100	4/5	61	23.4	9.3	27.5
Lynn Lake	21B50	4000	4/5	49	21.8	0.0	29.8
Sawmill Ridge	21B31	4700	4/5	80	32.6	22.8	41.6
Snowshoe Butte SP	21B43	5000	3/26	101	45.8	39.4	59.8
Stampede Pass	21B10	3860	3/15	92	39.6	43.0	41.5
			4/2	99	41.3	29.8	43.9
Twin Camp	21B30	4100	4/5	65	27.2	10.7	27.8

CEDAR RIVER

City Cabin	21B03	2390	3/29	20	7.0	0.0	20.0
Mt. Gardner	21B21	3300	3/28	18	6.5	0.0	19.8
Mt. Lindsay	21B16	2500	3/30	34	11.9	0.0	18.2
Mt. Washington New	21B15	3000	3/28	0	0.0	0.0	10.8
Rex River	21B17	2400	3/29	34	12.1	0.0	17.8
S. F. Cedar	21B06	3000	3/29	26	9.8	0.0	23.2
Tinkham Creek	21B20	3400	3/29	33	12.7	4.7	27.9

SNOQUALMIE RIVER

Alpine Meadow	21B48	3500	3/28	88	40.2	18.9	55.2
Lake Elizabeth	21B19	2900	3/27	85	37.9	19.3	50.7
Olallie Meadows	21B02	3625	3/26	82	39.0	26.4	51.9
S. F. Tolt	21B18	1900	3/28	0	0.0	0.0	1.5

SKYKOMISH RIVER

Lake Elizabeth	21B19	2900	3/27	85	37.9	19.3	50.7
Stevens Pass	21B01	4070	3/14	100	40.6	50.0	52.3
			3/28	92	40.9	46.3	54.9
Stevens Pass Sand Shed	21B45	3700	3/14	77	31.3	33.5	37.5
			3/28	69	30.4	32.0	39.5

Average based on 1963-77 average

SNOW DATA TO APRIL 1, 1979 - APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average [†]
<u>SKAGIT RIVER</u>							
Beaver Creek Trail	21A04	2200	3/31	27	10.1	6.2	15.4
Beaver Pass	21A01	3680	3/31	53	19.1	20.9	35.0
Brown Top Ridge +	21A28a	6000	3/31	103	35.6	55.0	74.2
Cloudy Pass +	20A22a	6500		Not Measured		-	49.8
Devils Park	20A04	5900	3/30	88	32.4	43.8	47.7
Freezeout Creek Trail	20A01	3500	3/29	29	11.1	5.9	13.7
Freezeout Meadows New	20A38	5000	3/29	69	28.0	24.0	41.0
Granite Creek	21A29A	3500	3/30	41	13.8	13.8	22.3
Harts Pass	20A05A	6500	3/30	88	31.9	47.4	48.7
Klesilkwa	35B-Can	3700	3/27	25	9.1	4.4	15.1*
Lyman Lake	20A23A	5900		Late Report		59.3	65.5
Meadow Cabins	20A08	1900	3/30	16	5.8	1.5	6.6
New Hozomeen Lake	21A30	2800	3/29	32	10.8	4.7	15.2
New Tashme	26A-Can	2500	3/27	26	8.8	6.1	10.8*
Quartette Lake	34-Can	4000	3/29	32	11.0	10.6	14.6*
Rainy Pass	20A09	4780	3/30	90	28.0	43.4	43.7
Thunder Basin	20A07	4200	3/30	58	19.9	18.4	24.7

BAKER RIVER

Dock Butte	21A11A	3800		Late Report		43.2	74.5
Easy Pass	21A07A	5200		Late Report		86.3	88.7
Jasper Pass	21A06A	5400		Late Report		77.6	92.6
Marten Lake	21A09A	3600		Late Report		52.1	82.8
Mount Blum +	21A18a	5800		Late Report		61.6	65.9
Panorama New	21A26	4300	3/11	103	52.3	52.8	72.8
			3/31	104	52.3	53.5	77.0
Rocky Creek	21A12A	2100		Late Report		7.9	34.4
Schreibers Meadow	21A10A	3400		Late Report		37.9	68.8
S. F. Thunder Creek	21A14A	2200		Late Report		0.0	7.9
Watson Lakes	21A08A	4500		Late Report		49.5	72.3

Average based on 1963-77 average

* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation.

SNOW DATA TO APRIL 1, 1979 - APPENDIX 9

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average [#]

NOOKSACK RIVER

Bald Mountain +	21A19a	4400	3/27	96	43.4	38.5	60.0
Canyon +	21A20a	5100	3/27	98	43.9	38.5	73.9
Glacier Creek	21A23	3700	3/29	51	21.5	4.8	19.9
Panorama New	21A26	4300	3/11	103	52.3	52.8	72.8
			3/31	104	52.3	53.5	77.0
Twin Lakes +	21A21a	5200	3/27	116	52.2	38.5	84.4

O L Y M P I C P E N I N S U L ADUNGENESS RIVER

Deer Park	23B04	5200	3/27	46	19.1	11.6	22.9
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MORSE CREEK

Cox Valley	23B14	4500	3/29	75	30.8	28.0	44.3
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ELWHA RIVER

Hurricane	23B03	4500	3/29	48	17.5	11.9	26.9
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Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadia observation

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
NOAA, National Weather Service
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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CURRENT SERIAL RECORDS

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